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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/578,610 | 05/25/2000 | Won-Kyu Suk | 78-489 (P9415) | 7244 |

7590 08/27/2003

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EXAMINER

LY, ANH VU H

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2667

DATE MAILED: 08/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/578,610

Applicant(s)

SUK, WON-KYU

Examiner

Anh-Vu H Ly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-8 is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on May 25, 1999. It is noted, however, that applicant has not filed a certified copy of the 1999-18781 Korean application as required by 35 U.S.C. 119(b).

Specification

2. The disclosure is objected to because of the following informalities: under the Brief Description of the Drawings section on pages 3-4, brief description of Fig. 3 is omitted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Ito (US Patent No. 6,408,039).

With respect to claim 1, Ito discloses in Fig. 1, a rake receiver including a plurality of searcher/finger units 11-16 (a plurality of fingers). Ito discloses in Fig. 2, an internal architecture of a searcher/finger for despreading a received signal and extracting symbol data (each of the fingers despreading a signal received in one path and extracting symbol data). Further, as shown in Fig. 1, a symbol combiner 18 for combining finger symbols output by the searcher/finger units 11-16; wherein the finger symbols are compensated for errors which occur during transmissions by the phase equalizer 26 by adjusting the phase of the symbols using the calculated result of the phase calculator 24, as shown in Fig. 2, before being combined by the symbol combiner 18 (a symbol combiner for combining symbol data except for symbol data whose signs are inverted due to fading among the symbol data received from the fingers).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US Patent No. 6,408,039).

With respect to claim 3, Ito discloses a radio communication apparatus having a rake receiver for searching and combining reception paths. Ito does not disclose the symbol data is a

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2's complement of n bits. However, having a 2's complement of n bits, where n is an arbitrary number, is known in the digital communications in the process of executing and performing an arithmetic operation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of having 2's complement of n bits in Ito's system, since 2's complement is well known in the art in executing arithmetic operations.

Allowable Subject Matter

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 4-8 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art does not teach or fairly suggest an effective path selector for outputting only symbol data with a sign corresponding to the majority sign among the symbol data received from the energy determiner; wherein only symbol data with an energy higher than a threshold is being applied to the effective path selector, as specified in the independent claims 4, 6, and 7.

The prior art does not teach or fairly suggest outputting symbol data with energy higher than the threshold to an effective path selector and setting symbol data with energy less than the threshold to 0s by the energy determiner; checking the signals of the symbol data received from the energy determiner by the effective path selector; and setting symbol data with a sign different from the majority sign to 0s and outputting symbol data with majority sign to a channel combiner by the effective path selector, as specified in the independent claim 8.

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Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsutsui et al (US Patent No. 6,385,181) discloses an array antenna system for a wireless base station in CDMA mobile communications.

Rashid-Farrokhi et al (US Patent No. 6,304,750) discloses space-time diversity receiver for wireless systems.


Asanuma (US Patent No. 6,192,066) discloses a rake receiver in a CDMA communications system.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 703-306-5675. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 703-305-4378. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

avl


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 8/25/03